



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,259	04/18/2006	Junko Kakegawa	P29770	8831
7055 7590 08/23/2010 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER LACLAIR, DARCY D				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
08/23/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/576,259

Applicant(s)

KAKEGAWA, JUNKO

Examiner

Darcy D. LaClair

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1.3.9-15 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1.3.9-15 and 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **5/28/2010**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed on **5/28/2010**. In particular, **new Claim 21** has been added, recite a Barcol hardness of 40 or more. This limitation is supported at page 28 line 24 of the specification as filed. This limitation was not present in the claims at the time of the preceding Office Action. Thus, the following action is properly made **FINAL**.

Claim Rejections - 35 USC § 103

2. **Claims 1, 3, 9-12, 14-15 and 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Maekawa (WO2002/090435)** in view of **Nakano et al. (US 5,302,645)** and **Kudou (US 2002/0123570)**

The rejection is adequately set forth in **paragraph 2** of the office action mailed **12/31/2010**, and is incorporated here by reference.

With regard to new Claim 21, Maekawa discloses that PTT may be obtained according to methods described in JP-A-51-140992, JP-A-5-262862, and JP-A-8-311177. (See par [0027]) Applicant refers to the same set of documents for instruction

in generating the PTT. (See applicant's specification p. 12 par [0011]) The filler is treated with a portion of the resin. (See the discussion with regard to claim 3) With the combination of Maekawa and Nakano, the epoxy and polycarbonate would be present in the composition, in ratios determined to be most appropriate for PTT specifically. (See the discussion with regard to claim 1) The hardness of the composition would be conferred by the PTT resin, the additional resins (epoxy and polycarbonate) used, and their content, and the type and mixing capabilities of the fillers. It is the examiner's position that the composition of Maekawa in view of Nakano and Kudou is substantially similar to applicant's claimed composition, and would inherently have substantially similar physical properties, including the hardness, namely 40 or more.

3. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Maekawa** in view of **Nakano et al.**, **Kudou et al.** and **Largman et al (US 4,403,052)** and **MatWeb (ENC 1299)** (<http://www.matweb.com/>).

The rejection is adequately set forth in **paragraph 3** of the office action mailed **12/31/2010**, and is incorporated here by reference.

Response to Arguments

4. Applicant's arguments filed **5/28/2010** have been fully considered. Specifically, applicant argues

(A) The office relies on Nakano for the missing teaching in Maekawa as to the content of epoxy resin or polycarbonate resin, however the sole basis for the reliance on

Nakano is a single sentence "Nakano teaches a polyethylene terephthalate composition, *which is a similar alkylene terephthalate resin.*" This assertion is completely unsupported in the record and is insufficient to support the obviousness rejection and is factually incorrect. The office previously argued that it would be obvious to substitute Nakano's PET with PTT given the advantages of the improved mechanical properties of PTT over PET described in other references - Houck and Nexant. The basis for the rejection was not that the two polyester resins were similar, but rather that PTT was better than PET and a person skilled in the art would substitute PTT for PET in an effort to obtain an improved composition. Applicants discuss similarities of PET, PNT, and PTT, (structurally similar and similar synthesis) but mostly focus on the differences and advantages of PTT. Simply because all three resins are polyesters formed by similar reactions does not mean that a person skilled in the art would consider them similar for the purpose of combining reference teachings. Furthermore, applicant's have submitted a publication from Shell Chemicals describing PTT and showing how it differs from PBT and PET; in particular, the very different elastic recovery profiles of PET and PTT (Figure 9), the different impact resistance (Figure 14), the different tensile properties (Figure 15), the different profiles for shrinkage v. temperature (Figs. 16 and 17) are shown.

Further the office relies on Kudou for its disclosure of a resin composition having good mechanical properties such as impact resistance, heat stability and surface appearance by the use of inorganic fillers such as wollastonite, However Kudou relates to a polyoxymethylene resin composition, which is entirely different from the

polytrimethylene terephthalate resin of the present invention. Thus one of skill in the art would not combine the teachings of Kudou with Maekawa or Nakano, which relate to completely different polymer systems. Kudou teaches inorganic fillers can be used to impart desired surface appearance and slidability, but Kudou is silent with respect to the use of wollastonite to provide mechanical strength, which is the purpose for which applicants include the wollastonite.

(B) Applicants note new claim 21 recites the claimed molded article has a Barcol hardness of 40 or more. The cited art teaches no expectation of success in achieving a Barcol hardness of 40 or more, not only not suggesting that one *should* make such an article, but not suggesting that one *could* make such an article.

5. **With respect to argument (A)**, applicant's arguments have been considered but are **not persuasive**. With respect to the combination of Maekawa and Nakano, Maekawa teaches a molding composition comprising polytrimethylene terephthalate (see abstract) in combination with a thermoplastic resin such as polycarbonate incorporated in the resin. (See par [0088]) Maekawa further teaches a film forming agent for use as a surface treatment for the inorganic filler, (see par [0051]) and cites epoxy polymers as particularly preferred for economical and fatigue resistance reasons. (See par [0057]) Thus the motivation to use a polycarbonate and epoxy polymer in the composition of Maekawa is not limited to the disclosure of Nakano. Although there are differences between the PTT of Maekawa and the PET of Nakano, both are polyesters, and alkylene terephthalates. Thus given the teachings of Maekawa to prepare

a polyester in combination with a polycarbonante and an epoxy, there is sufficient similarities that one of ordinary skill in the art in polymer compounding would reasonably look to Nakano, which is likewise a polyester in combination with a polycarbonate and an epoxy for direction as to the content of each of these additional polymers.

For this composition, Nakano teaches 1 to 25 parts by weight of an epoxy resin and 5 to 50 parts of a thermoplastic resin. (See abstract) preferably polycarbonate. (See col 2 line 58 - col 3 line 2) The combination of these components within specific ranges provides an extremely stable moldability. (See col 1 line 49-55) Additionally, Nakano discloses guidance in formulating the resin. Specifically too little epoxy will have no effect, and too much epoxy will lead to molding flashes and unstable fluidity, and too little thermoplastic will have little effect and too much thermoplastic will lead to a reduction in mechanical strength. (see col 3 line 50-68) Thus in addition to disclosing a specific content of the polycarbonate and the epoxy, Nakano teaches one of ordinary skill in the art what the characteristic features of the addition of polycarbonate and epoxy will be and what detrimental effects to study when determining the final concentration to use. In that the content of epoxy, polycarbonate and filler constitutes results effective variables, it would be obvious to one of ordinary skill in the art to adjust the content of each of these components in order to achieve an amount most appropriate for the particular thermoplastic resin taught by Maekawa, depending on the final molded product.

With respect to the combination of Maekawa and Nakano with Kudou, Maekawa teaches a molding composition comprising polytrimethylene terephthalate and 5 to 70%

by weight of an inorganic filler (see abstract) which is wollastonite. (see par [0036]) Maekawa teaches that the inorganic filler may be used singly or in a combination of two or more thereof, and that the combination of glass fiber and an inorganic fiber other than glass fiber is preferred because mechanical strength, dimensional accuracy, and electrical properties are provided at the same time. (see par [0041]) Maekawa further exemplifies the use of glass fiber and wollastonite together, treated with aminopropyl triethoxysilane, in a ratio of 30/20, respectively. (See par [0111]) Therefore the motivation to use the combination of wollastonite and glass fiber together is found in Maekawa. Maekawa teaches that the composition has good appearance, superior mechanical properties, and good fatigue resistance. (See par [0121]) Kudou teaches that a resin composition having good mechanical properties such as impact resistance and heat stability, (see par [0088]) in addition to good surface appearance obtained by the use of inorganic fillers such as wollastonite (see par [0062], [0063]) is suitable for use in a multitude of applications such as sinks, drains, an housing equipment (see par [0082],[0087]) Kudou teaches that particle sizes and amounts depend on the uses and objects of the individual fillers. Inorganic fillers such as wollastonite give a good surface appearance and slidability to molded articles. (See par [0062], [0063]) Glass fibers are particularly useful to give rigidity to molded articles. (See par [0064],[0065]) These are features of the filler, and not features of the polymer base. Furthermore, fillers are applicable to resins in general, and one of ordinary skill in the art would be motivated to apply teachings with regard to the use of a beneficial filler to other resins, particularly in

a case such as the instant one, where the other resin composition already teaches the use of the fillers, but is deficient in teaching a specific content.

With respect to argument (B), applicant's arguments have been considered but are **not persuasive**. The Barcol hardness is a physical characteristic of a resin composition based on the properties of the combination of polymers and fillers. Case law holds that a material and its properties are inseparable. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990) Thus as Maekawa discloses PTT obtained by the same set of instruction for generating the PTT as applicant, and the combination of Maekawa and Nakano provides the epoxy and polycarbonate would be present in the composition, in ratios determined to be most appropriate for PTT specifically, it is the examiner's position that the resin composition would be the same. The hardness of the composition would be conferred by the PTT resin, the additional resins (epoxy and polycarbonate) used, and their content, and the type and mixing capabilities of the fillers. It is the examiner's position that the composition of Maekawa in view of Nakano and Kudou is substantially similar to applicant's claimed composition, and would inherently have substantially similar physical properties, including the hardness, namely 40 or more.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1796

Darcy D. LaClair
Examiner
Art Unit 1796

/DDL/